

APPENDIX IV

LAND USE/LAND COVER	AREAS IN HUC-11 SUBWATERSHEDS (SQUARE MILES)								
	010	020	030	040	050	060	070	080	090
Deciduous Forest	30.66	29.19	30.36	48.84	14.33	64.91	88.26	65.03	63.54
Emergent Herbaceous Wetlands	0.02								
Evergreen Forest	5.13	3.82	1.87	2.15	2.65	0.47	1.09	2.87	1.86
High Intensity: Commercial/Industrial	0.23	2.28	0.81	0.3	1.23	0.33	0.46	1.09	1.12
High Intensity: Residential	0.01	0.65	0.51	0.02	0.17	0.06	0.07	0.08	0.30
Low Intensity: Residential	0.47	4.51	3.68	0.57	3.32	0.41	0.83	0.73	1.69
Mixed Forest	16.67	17.58	8.24	11.34	9.99	2.44	4.40	7.50	7.08
Open Water	0.13	0.59	0.94	0.28	0.12	0.05	1.05	0.09	0.16
Other Grasses: Urban/Recreational	0.22	4.92	2.11	0.35	3.18	0.23	0.36	0.52	0.88
Pasture/Hay	36.31	37.53	11.48	42.24	9.57	8.88	10.73	26.65	20.12
Row Crops	14.95	13.51	3.27	11.30	2.57	3.41	6.66	9.78	11.13
Transitional	0.29	0.08	0.03	0.06		0.03	0.45	0.60	0.12
Quarries/Strip Mines		0.22	0.06	0.01				0.08	0.14
Woody Wetlands	0.48	0.04	0.15				0.44	0.01	0.05
Total	105.56	114.68	63.54	117.48	47.13	81.22	115.35	115.04	108.17

Table A4-1. Land Use Distribution in Harpeth River Watershed by HUC-11. Data are from 1992 Multi-Resolution Land Characterization (MRLC) derived by applying a generalized Anderson Level II system to mosaics of Landsat thematic mapper images collected every five years.

HYDROLOGIC SOIL GROUPS
<p>GROUP A SOILS have low runoff potential and high infiltration rates even when wet. They consist chiefly of sand and gravel and are well to excessively drained.</p> <p>GROUP B SOILS have moderate infiltration rates when wet and consist chiefly of soils that are moderately deep to deep, moderately to well drained, and moderately coarse to coarse textures.</p> <p>GROUP C SOILS have low infiltration rates when wet and consist chiefly of soils having a layer that impedes downward movement of water with moderately fine to fine texture.</p> <p>GROUP D SOILS have high runoff potential, very low infiltration rates, and consist chiefly of clay soils.</p>

Table A4-2. Hydrologic Soil Groups in Tennessee as Described in WCS.

STATION	HUC-11	NAME	AREA (SQ. MILES)	PERIOD OF OBSERVATIONS	FLOW (CFS)		
					Min	Max	Mean
03432400	05130204020	Harpeth River	210.0	08/01/88 - 09/30/94	4.0	508.0	109.0
03432371	05130204020	Harpeth River					
03432350	05130204020	Harpeth River	191.0	10/01/74 - 09/30/94	0.0	18,500.0	298.0
03433500	05130204030	Harpeth River	408.0	05/01/20 - 09/30/96	0.0	32,400.0	592.0
03432500	05130204040	West Harpeth River	66.9	10/01/54 - 09/30/61	0.0	8,020.0	94.0
03432925	05130204050	Little Harpeth River	22.0		0.0		
03433660	05130204060	South Harpeth River	27.6		5.0		
03433700	05130204060	South Harpeth River	59.6		9.4		
03433810	05130204070	Brush Creek Near Kingston Springs	27.2		2.3		
03434560	05130204070	Trace Creek Near White Bluff	2.0		0.2		
03434580	05130204070	Harpeth River Near Petway	727.0		23.8		
03434500	05130204070	Harpeth River Near Kingston Springs	681.0	08/01/25 - 12/11/00	16.0	15,300.0	1,200.0
03433910	05130204080	Big Turnbull Creek	66.4		6.0		
03434585	05130204090	Jones Creek Trib at Dickson	5.1		0.4		
03434590	05130204090	Jones Creek Near Burns	13.3		0.3		
03434620	05130204090	Town Branch Near Charlotte	8.3		0.0		

Table A4-3. Historical USGS Streamflow Data Summary Based on Mean Daily Flows in Harpeth River Watershed. Min, absolute minimum flow for period of record.

PARAMETER ID	PARAMETER NAME
00010	Water Temperature (Degrees Centigrade)
00061	Flow, Stream, Instantaneous (cfs)
00080	Color (Platinum-Cobalt Units)
00094	Specific Conductance, Field ($\mu\text{mhos}/\text{cm}$ @ 25° C)
00095	Specific Conductance, Field ($\mu\text{mhos}/\text{cm}$ @ 25° C)
00300	Oxygen Dissolved (mg/L)
00310	BOD 5 Day @ 20° C (mg/L)
00335	COD in .025 N $\text{K}_2\text{Cr}_2\text{O}_7$ (mg/L)
00400	pH (Standard Units)
00410	Alkalinity, Total (mg/L as CaCO_3)
00515	Residue, Total Filtrable (mg/L)
00530	Residue, Total Nonfiltrable (mg/L)
00610	Nitrogen Ammonia Total (mg/L as N)
00619	Ammonia, Unionized (Calculated From Temp-pH- NH_4 ; mg/L)
00630	Nitrite Plus Nitrate, Total (1 Determination mg/L as N)
00635	Nitrogen, Ammonia and Organic , Total (mg/L as N)
00665	Phosphorus, Total (mg/L as P)
00900	Hardness, Total (mg/L as CaCO_3)
00940	Chloride, Total In Water (mg/L)
00945	Sulfate, Total (mg/L as SO_4)
01002	Arsenic, Total ($\mu\text{g}/\text{L}$ as As)
01027	Cadmium, Total ($\mu\text{g}/\text{L}$ as Cd)
01034	Chromium, Total ($\mu\text{g}/\text{L}$ as Cr)
01042	Copper, Total ($\mu\text{g}/\text{L}$ as Cu)
01045	Iron, Total ($\mu\text{g}/\text{L}$ as Fe)
01051	Lead, Total ($\mu\text{g}/\text{L}$ as Pb)
01067	Nickel, Total ($\mu\text{g}/\text{L}$ as Ni)
01077	Silver Total ($\mu\text{g}/\text{L}$ as Ag)
01092	Zinc, Total ($\mu\text{g}/\text{L}$ as Zn)
31616	Fecal Coliform (Membrane Filter, M-FC Broth at 44.5° C)
71900	Mercury, Total ($\mu\text{g}/\text{L}$ as Hg)

Table A4-4a. Water Quality Parameters and Codes.

PARAMETER ID	SUBWATERSHED				
	020	040	060	070	090
00010	a,b,c	d	e	f,g,h,i	j
00061	a		e	g	
00080			e		
00094	c	d	e	f,h,i	j
00095	a,b			g	
00300	c	d	e	f,h,i	j
00310	c			h,i	j
00335				f	
00400	c	d	e	f,h,i	j
00410		d	e		
00515		d	e	f	
00530	c	d	e	f,h,i	j
00610	c	d	e	f,h,i	j
00619	c	d	e	f,h,i	j
00630		d	e	f	
00635			e		
00665		d		f	
00900	c	d	e	f,h,i	j
00940		d	e		
00945		d	e		
01002		d	e	f	
01027	c	d	e	f,h,i	j
01034	c	d	e	f,h,i	j
01042	c	d	e	f,h,i	j
01045		d	e		
01051	c	d	e	f,h,i	j
01067	c	d	e	f,h,i	j
01077	c		e	h,i	
01092	c	d	e	f,h,i	j
31616		d	e	f	
71900	c	d	e	f,h,i	j

Table A4-4b. Water Quality Parameters Monitored in the Harpeth River Watershed.

CODE	STATION	ALIAS	AGENCY	LOCATION
a	03432350		USGS	Harpeth River @ Franklin
b	03432400		USGS	Harpeth River Below Franklin
c	HARPETH085.2	HARPE085.2WI	TDEC	Harpeth River upstream of Franklin STP
d	ECO71h15	WHARP002.3WI	TDEC	West Harpeth River @ RM 22.3
e	ECO71f12		TDEC	South Harpeth River @ RM 16.9
f	0014311	HARPE040.5CH	TDEC	Harpeth River @ RM 40.5
g	03434500		TDEC	Harpeth River Near Kingston Springs
h	FLATROCK002.15	FLAT002.1WI	TDEC	100 Feet Upstream of Fairview STP
i	TRACE004.3	TRACE004.3DI	TDEC	0.25 Mi Upstream of White Bluff STP
j	JONES021.7	JONES021.7DI	TDEC	Jones Creek @ RM 21.7

Table A4-4c. Water Quality Monitoring Stations in Harpeth River Watershed. TDEC, Tennessee Department of Environment and Conservation; USGS, United States Geological Survey.

FACILITY NUMBER	FACILITY NAME	SIC	SIC NAME	MADI	WATERBODY	SUBWATERSHED
TN0067164	College Grove ES	4952	Sewerage Systems	Minor	Unnamed trib @ mi 0.7 to Overall Creek @ mi 0.8	05130204010
TN0064475	Bethesda ES	4952	Sewerage Systems	Minor	Unnamed trib @ mi 0.46 to Rutherford Creek @ mi 27.9	05130204010
TN0001384	General Smelting and Refining	3339	Primary Smelting and Refining of Nonferrous Metals	Major	Harpeth River @ mi 110.3	05130204010
TN0057789	Eagleville School	4952	Sewerage Systems	Minor	Cheatham Branch @ mi 1.9	05130204010
TN0067873	Oakview ES	8211	Elementary and Secondary Schools	Minor	Unnamed Trib to Five Mile Creek @ mi 1.1	05130204020
TN0028827	Franklin STP	4952	Sewerage Systems	Major	Harpeth River @ mi 85.2	05130204020
TN0060216	Best Western-Goose Creek Inn STP	4952	Sewerage Systems	Minor	Five Mile Creek @ mi 2.2	05130204020
TN0068861	Williamson County Hwy Dept	1422	Crushed and Broken Limestone	Minor	Trib To Harpeth River	05130204020
TN0064297	Trinity ES	4952	Sewerage Systems	Minor	Unnamed trib @ mi 0.4 to Mayes Creek @ mi 1.7	05130204020
TN0073580	Nashville South Auto/Truck Plaza	5541	Except with Convenience Stores	Minor	Surface Ditch To Five Mile Creek @ mi 2.2	05130204020
TN0057835	Page MS	4952	Sewerage Systems	Minor	Harpeth River @ mi 101.9	05130204020
TN0025232	Harpeth Valley Utility District STP	4952	Sewerage Systems	Major	Harpeth River @ mi 57.8	05130204030
TN0027278	Cartwright Creek U.C. STP	4952	Sewerage Systems	Minor	Harpeth River @ mi 68.8	05130204030
TN0029718	Lynnwood Utility Corp. STP	4952	Sewerage Systems	Minor	Harpeth River @ mi 77.9	05130204030

TN0066672	Hutton Stone, Inc.	1422	Crushed and Broken Limestone	Minor	Harpeth River	05130204030
TN0068489	Delta Express #3217	5441	Processed Wastewater	Minor	Tributary of Flat Creek	05130204030
TN0074586	Pegram STP	4952	Sewerage Systems	Minor	Harpeth River at Mile 46.0	05130204030
TN0025232	Harpeth Valley Utility District STP	4952	Sewerage Systems	Major	Harpeth River @ mi 57.8	05130204040
TN0027278	Cartwright Creek U.C. STP	4952	Sewerage Systems	Minor	Harpeth River @ mi 68.8	05130204040
TN0029718	Lynnwood Utility Corp. STP	4952	Sewerage Systems	Minor	Harpeth River @ mi 77.9	05130204040
TN0057827	Hillsboro ES	4942	Sewerage Systems	Minor	Pinewood Branch @ mi 0.1 to Wilkie Branch @ mi 0.5	05130204040
TN0074586	Pegram STP	4952	Sewerage Systems	Minor	Harpeth River @ Mile 46.0	05130204040
TN0059790	Kingston Springs STP	4952	Sewerage Systems	Minor	Harpeth River @ mi 31.5	05130204070
TN0004294	Second South Cheatham UD	4941	Water Supply	Minor	Harpeth River @ mi 36.1	05130204070
TN0020460	White Bluff STP	4952	Sewerage Systems	Minor	Trace Creek @ mi 4.3	05130204070
TN0068675	Interstate Packaging Corporation	2671	Noncontact Cooling Water	Minor	Wet Weather Conveyance into Flat Creek @ mi 3.1	05130204070
TN0062332	Fairview STP	4952	Sewerage Systems	Minor	Flatrock Branch @ mi 2.15	05130204070
TN0028991	Bethany Hills Camp STP	4952	Sewerage Systems	Minor	Sullivan's Branch @ mi 1.8	05130204080
TN0063878	Stuart Burns ES	6211	Other	Minor	Beaver Dam Creek @ mi 3.7	05130204080
TN0074659	Saltire Industrial			Minor	Unnamed Trib to Willow Branch of Piney River	05130204080
TN0057002	Dickson Motel STP	4952	Sewerage Systems	Minor	Gin Branch @ mi 3.0	05130204080

TN0004855	Turnbull UD-Burns	4941	Water Supply	Minor	Turnbull Creek	05130204080
TN0066958	Dickson STP	4952	Sewerage Systems	Major	Jones Creek at Mile 21.7	05130204090

Table A4-5. Active Permitted Point Source Facilities in the Harpeth River Watershed. SIC, Standard Industrial Classification; MADI, Major Discharge Indicator; UD, Utility District.

FACILITY NUMBER	FACILITY NAME	SIC	SIC NAME	WATERBODY	HUC-11
TN0068861	Williamson County Quarry	1422	Crushed and Broken Limestone	Trib to Harpeth River	05130204020
TN0027774	Franklin Quarry	1422	Crushed and Broken Limestone	Wet Water Conveyance to Carters Creek	05130204020
TN0066672	Hutton Stone Quarry	1422	Crushed and Broken Limestone	Harpeth River	05130204030
TN0072273	Hickman County Quarry	1422	Crushed and Broken Limestone	Trib to Rials Branch	05130204080
TN0002747	Dickson Quarry	1422	Crushed and Broken Limestone	Jones Creek	05130204090

Table A4-6. Active Mining Sites in Harpeth River Watershed.

SITE NUMBER	SITE NAME	COUNTY	LIVESTOCK	WATERBODY	HUC-11
TNA000031	Harlin and Sumners Dairy	Williamson	Dairy	Polk Creek	05130204020

Table A4-7. CAFO Sites in Harpeth River Watershed.

LOG NUMBER	COUNTY	DESCRIPTION	WATERBODY	HUC-11
95.280	Williamson	Gravel Dredging	Harpeth River	05130204020
95.649	Williamson	Gravel Dredging	Harpeth River	05130204020
98.003	Williamson	Box Culvert	Dry Branch	05130204020
98.095	Williamson	Extension of Box Culvert	Trib to Mayes Creek	05130204020
98.146	Williamson	Box Culvert	Trib to Spencer Creek	05130204020
98.392	Williamson	2 Box Culverts	Trib to Mayes Creek	05130204020
98.447	Williamson	Dredging of Pond Sediment	Trib to Harpeth River	05130204020
98.560	Williamson	Overflow From Detention & Wet Area	Spencer Creek	05130204020
98.566	Williamson	Culvert Extension	Trib to Spencer Creek	05130204020
98.567	Williamson	Sewer Crossings	South Prong Spencer Creek	05130204020
99.024	Williamson	Stream Relocation	South Prong Spencer Creek	05130204020
99.133	Williamson	Road Crossing and Detention	Trib to South Prong Spencer Creek	05130204020
99.166	Williamson	Detention/Retention Pond	South Prong Spencer Creek	05130204020
99.176	Williamson	Channelization	Brush Creek and Unnamed Trib	05130204020
99.369	Williamson	Stream Restoration	Trib to Lynnwood Branch	05130204020
99.453	Williamson	Culvert	Lynnwood Branch	05130204020
99.521	Williamson	Low Water Crossing	Watson Branch	05130204020
9810.132	Williamson	Road Crossing	Spencer Creek	05130204020
9810.156	Williamson	Road Crossing	Trib to Burke Branch	05130204020
9910.192	Williamson	Road Crossing	Trib to Watson Branch	05130204020
9910.207	Williamson	Road Crossing	Trib to Watson Branch	05130204020
9910.208	Williamson	Road Crossing	Trib to Watson Branch	05130204020
9910.209	Williamson	Road Crossing	Trib to Watson Branch	05130204020
9910.210	Williamson	Road Crossing	Trib to Watson Branch	05130204020
9910.218	Williamson	Road Crossing	Trib to Mayes Creek	05130204020
00.102	Williamson	Minor Road Crossing	Little Harpeth River (and Trib)	05130204030
98.248	Williamson	Road Crossings	Trib to Harpeth River	05130204030
98.374	Williamson	Pipe	Harpeth River	05130204030
99.393	Williamson	Culvert Replacement	Cartwright Creek	05130204030
9810.152	Cheatham	Utility Line	Harpeth River	05130204030
9910.025	Williamson	Road Crossing	Trib to Cartwright Creek	05130204030
9910.174	Davidson	Utility Line Crossing	Trib to Harpeth River	05130204030
00.012	Williamson	Stream Relocation/Restoration	Trib of Harpeth River	05130204040
95.244	Williamson	Gravel Dredging	Bear Creek	05130204040
98.073	Williamson	Bridge	Trib to West Harpeth River	05130204040
98.168	Williamson	Pipe Culvert	Trib to Harpeth River	05130204040
98.235	Williamson	Culvert Backfill For Construction	Trib to West Harpeth River	05130204040
98.451	Williamson	Impoundment & Wetland Construction	Trib to Leipers Fork	05130204040
9810.149	Williamson	Utility Line	West Harpeth River	05130204040
9810.219	Williamson	Bank Stabilization	West Harpeth River	05130204040
9810.232	Williamson	Gravel Dredging	Leipers Fork Creek	05130204040
9810.233	Williamson	Gravel Dredging	Leipers Fork Creek	05130204040
9910.005	Williamson	Road Crossing	Trib to Harpeth River	05130204040
9910.006	Williamson	Road Crossing	Trib to Harpeth River	05130204040
9910.028	Williamson	Road Crossing	Trib to Harpeth River	05130204040
97.769	Williamson	Residential Bridge Crossing	Little Harpeth River	05130204050
98.152	Williamson	Stream Bank Restoration	Trib to Little Harpeth River	05130204050
98.237	Davidson	Barge Terminal	Cumberland River	05130204050
98.251	Williamson	Bank Stabilization	Little Harpeth River	05130204050
98.305	Williamson	Slab Bridge	Trib to Little Harpeth River	05130204050
99.231	Williamson	Culvert	Trib to Little Harpeth River	05130204050
99.289	Williamson	Bank Stabilization	Little Harpeth River	05130204050
9810.148	Williamson	Road Crossing	Trib to Little Harpeth River	05130204050
9810.197	Williamson	Road Crossing	Trib to Little Harpeth River	05130204050

9810.198	Williamson	Sanitary Sewer & Water Main	Trib to Little Harpeth River	05130204050
9910.189	Davidson	Debris Removal	Otter Creek	05130204050
9910.190	Davidson	Debris Removal	Otter Creek	05130204050
9910.191	Davidson	Debris Removal	Otter Creek	05130204050
95.085	Williamson	Gravel Dredging	Little Harpeth River	05130204060
95.884	Williamson	Gravel Dredging	Hunting Camp Creek	05130204060
96.555	Williamson	Gravel Dredging	South Harpeth River	05130204060
96.556	Williamson	Gravel Dredging	South Harpeth River	05130204060
97.137	Williamson	Gravel Dredging	South Harpeth River	05130204060
97.341	Cheatham	Gravel Dredging	South Harpeth River	05130204060
97.675	Cheatham	Gravel Dredging	South Harpeth River	05130204060
97.706	Williamson	Gravel Dredging	South Harpeth River	05130204060
98.270	Cheatham	Deflectors & Cedar Tree Revetment	South Harpeth River	05130204060
99.150	Williamson	Single Span Bridge	Caney Fork Creek	05130204060
9810.018	Williamson	Gravel Dredging	South Harpeth River	05130204060
9810.131	Davidson	Road Crossing	South Harpeth River	05130204060
9910.003	Williamson	Sewer Line Crossing	Hunting Camp Creek	05130204060
9910.151	Williamson	Bank Stabilization	Trib to Little East Fork	05130204060
9910.193	Williamson	Road Crossing	Caney Fork Creek	05130204060
94.951	Davidson	Gravel Dredging	Harpeth River	05130204070
96.475	Cheatham	Gravel Dredging	Harpeth River	05130204070
97.555	Cheatham	Gravel Dredging	Harpeth River	05130204070
99.206	Cheatham	Bank Stabilization	Brush Creek	05130204070
9910.002	Williamson	Sewer Line Crossing	Brush Creek	05130204070
96.913	Dickson	Gravel Dredging	Turnbull Creek	05130204080
98.058	Williamson	Concrete Bridge	Trib to Big Turnbull Creek	05130204080
98.503	Dickson	I-840		05130204080
98.504	Dickson	I-840		05130204080
98.505	Dickson	I-840		05130204080
98.506	Dickson	I-840		05130204080
98.507	Dickson	I-840		05130204080
98.508	Dickson	I-840		05130204080
98.509	Dickson	I-840		05130204080
98.510	Dickson	I-840		05130204080
98.511	Dickson	I-840		05130204080
98.512	Dickson	I-840		05130204080
98.513	Dickson	I-840		05130204080
98.514	Dickson	I-840		05130204080
98.515	Dickson	I-840		05130204080
98.516	Dickson	I-840		05130204080
98.517	Dickson	I-840		05130204080
98.518	Dickson	I-840		05130204080
98.519	Dickson	I-840		05130204080
98.520	Dickson	I-840		05130204080
98.524	Dickson	I-840		05130204080
9910.125	Hickman	Road Crossing	Barren Fork Big Turnbull Creek	05130204080
9910.163	Dickson	Wet Weather Conveyance (WWC)	WWC to Gum Branch	05130204080
9910.164	Dickson	Wet Weather Conveyance (WWC)	WWC to Gum Branch	05130204080
95.787	Dickson	Gravel Dredging	Jones Creek	05130204090
97.642	Dickson	Gravel Dredging	Jones Creek	05130204090
98.379	Dickson	Utility Line Crossing	Jones Creek	05130204090

Table A4-8. Individual ARAP Permits Issued January 1994 Through June 2000 in Harpeth River Watershed.

PERMIT #	COUNTY	DATE ISSUED	SITE	IMPACTED ACRES	IMPACTED WATER	MITIGATION	HUC-11
93.59400	Williamson	11/09/93	Lewisburg Pike	0.20 acres	Harpeth River	on-site	05130203020
93.75000	Williamson	04/08/94	SR 96	0.37 acres	Watson Branch		05130203020

Table A4-9. Individual ARAP Permits Issued for Impacting Wetlands in Harpeth River Watershed.

PERMIT #	COUNTY	IMPACTED ACREAGE	MITIGATED ACREAGE	SITE	HUC-11
93.59400	Williamson	0.2 acres	0.5	Impacted Wetland	05130203020

Table A4-10. Individual ARAP Permits Issued for Mitigating Wetlands in Harpeth River Watershed.